

Date: Tuesday, 7/1/2008 10:48:59 AM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : 407 FWD X-TUBE, TURNING DETAIL
Job Number : 40174	
Estimate Number : 13204	
P.O. Number :	Part Number : D407667105TRN
This Issue : 7/1/2008 S.O. No. :	Drawing Number : D407-667-145 REVB
Prsht Rev. : NC	Project Number : N/A
First Issue : 1/1 Type : CROSSTUBES	Drawing Revision : B
Previous Run : 40173	Material :
Written By :	Due Date : 7/18/2008 Qty: 1 Um: Each
Checked & Approved By : <u>08.07.01</u>	
Comment : Est Rev:a 08.02.28 new issue EC	
Est Rev B 08.04.02 Removed polish EC verified by: DD	

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	D6010115	Crosstube Material
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part number

Description Batch

1 D6010-115

Crosstube

B32308

Check OD = 2.250"; ID = 1.610"

a.m 08.07.04 ①

2.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8673 on both ends as per Folio FA249

2-Turn first side as per Folio FA249

3- File transition lines smooth.

a.m 08.07.07 ①

3.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

a.m 08.07.07 ①

4.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA249

2- File transition lines smooth.

3-Remove sand and plugs

a.m 08.07.07 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 7/1/2008 10:48:59 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 FWD X-TUBE, TURNING DETAIL

Job Number: 40174

Part Number: D407667105TRN

Job Number:



Seq. #:

Machine Or Operation:

Description :

4-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-145
Inside of Cuff(Do not engrave on outside of tube)

A.m 08.07.07.01

5.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

A.m 08.07.07.01

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

508/07/07 @

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

ET 08-07-08

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

DP 8-2-8

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and stock in Kanban rack

Location:

x-tube Cell DP 8-2-8

10.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

08/07/10

Job Completion



mf 08-07-08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	40174
Description: Crosstube Assembly	Part Number:	D407-667-145
Inspection Dwg: D407-667-145 Rev: B		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.240	/			
	1.865	+0.005/-0.000	1.870	/			
	1.878	+0.005/-0.000	1.883	/			
	1.970	+0.005/-0.000	1.975	/			
	2.030	+0.005/-0.000	2.032	/			
	2.165	+0.005/-0.000	2.170	/			
	0.125	+/-0.010	0.125	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	R0.063	+/-0.010	R0.063	/			
	4.438	+/-0.010	4.438	/			
SIDE B	2.240	+0.005/-0.000	2.243	/			
	1.865	+0.005/-0.000	1.870	/			
	1.878	+0.005/-0.000	1.883	/			
	1.970	+0.005/-0.000	1.975	/			
	2.030	+0.005/-0.000	2.032	/			
	2.165	+0.005/-0.000	2.170	/			
	0.125	+/-0.010	0.125	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	R0.063	+/-0.010	R0.063	/			
	4.438	+/-0.010	4.438	/			
	113.20	+/-0.020	113.220	/			

Measured by:	a. n	Audited by:	S	Prototype Approval:	N/A
Date:	09.07.07	Date:	09/07/07	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.04.21	New Issue (P/O D407-667-105)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	



DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i> DS	APPROVED <i>[Signature]</i> DS	DRAWING NO. D407-667-145	REV. B SHEET 1 OF 3
DATE 05.07.26		TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	SCALE NTS
A	02.05.08	NEW ISSUE	
B	05.07.26	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	

RELEASED
05.07.26 *[Signature]*

UNDER REVIEW
06.08.10 *[Signature]*
re-draw detail

OK
08.07.01

Qty	Part Number	Description
X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
1	D6010-115	CROSSTUBE
2	D2856-400-694	ABRASION STRIP
2	D2873-043	NUT PLATE
2	D2873-045	NUT PLATE
2	D2891-1	SUPPORT
14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
4	MS21920-20	CLAMP

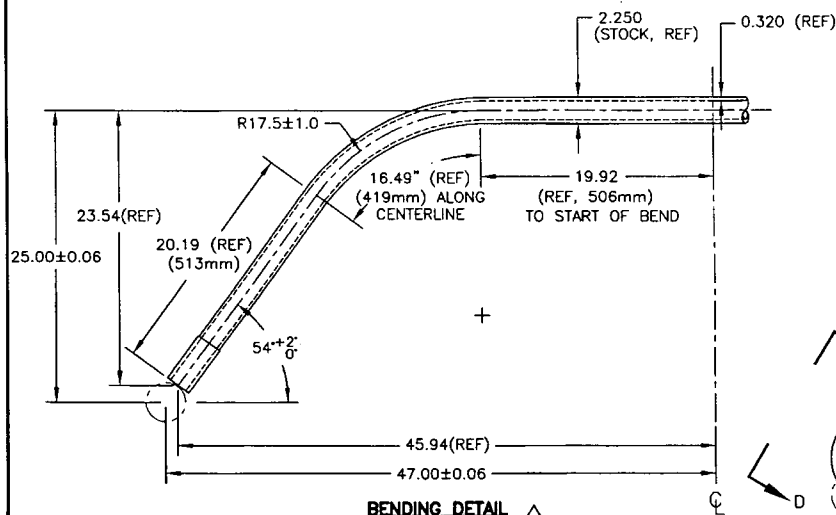
GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20 ± 0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-694 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2891-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX-241/291 SEALANT (OPTIONAL).
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

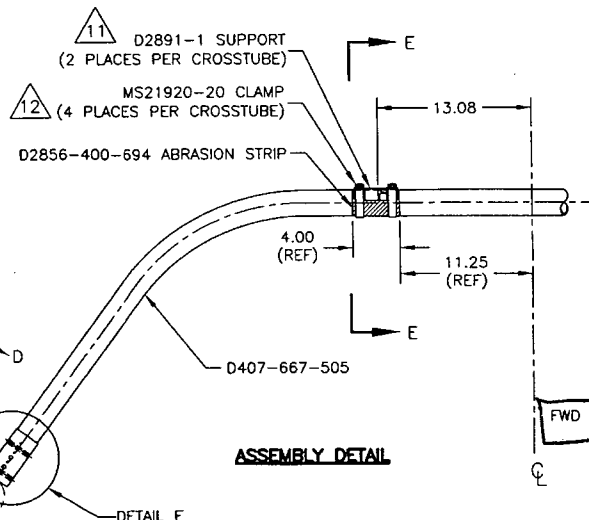
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BENDING DETAIL



ASSEMBLY DETAIL

△ B $\phi 0.323^{+0.005}_{-0.000}$
(TYP 5 PLACES PER CUFF)
HOLE TO BE ALIGNED WITHIN ± 0.001
OF HLE ON OTHER SIDE OF CUFF

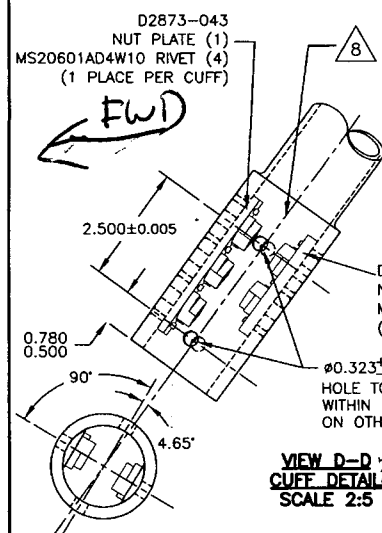
PILOT $\phi 0.128$
C'SINK $\phi 0.225 \times 100$
(TYP 7 PLACES PER CUFF)

FWD SIDE ONLY

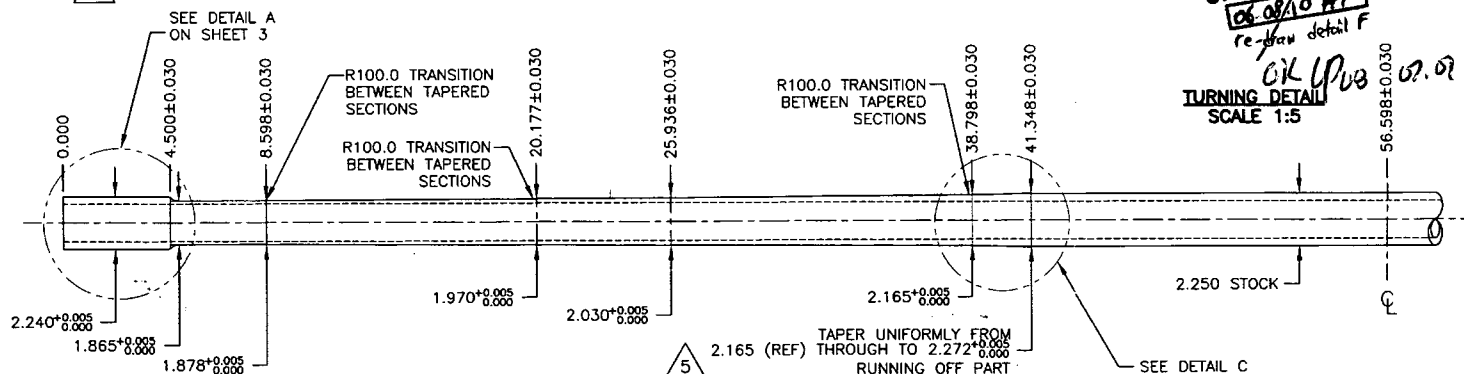
DETAIL F
SCALE 2:5

UNDER REVIEW
06.07.10 PH
re-draw detail F

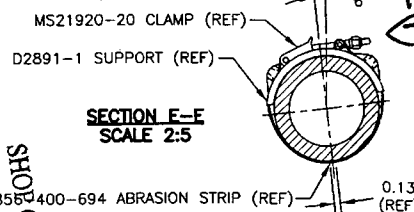
TURNING DETAIL
SCALE 1:5



**VIEW D-D
CUFF DETAIL**
SCALE 2:5



SECTION E-E
SCALE 2:5



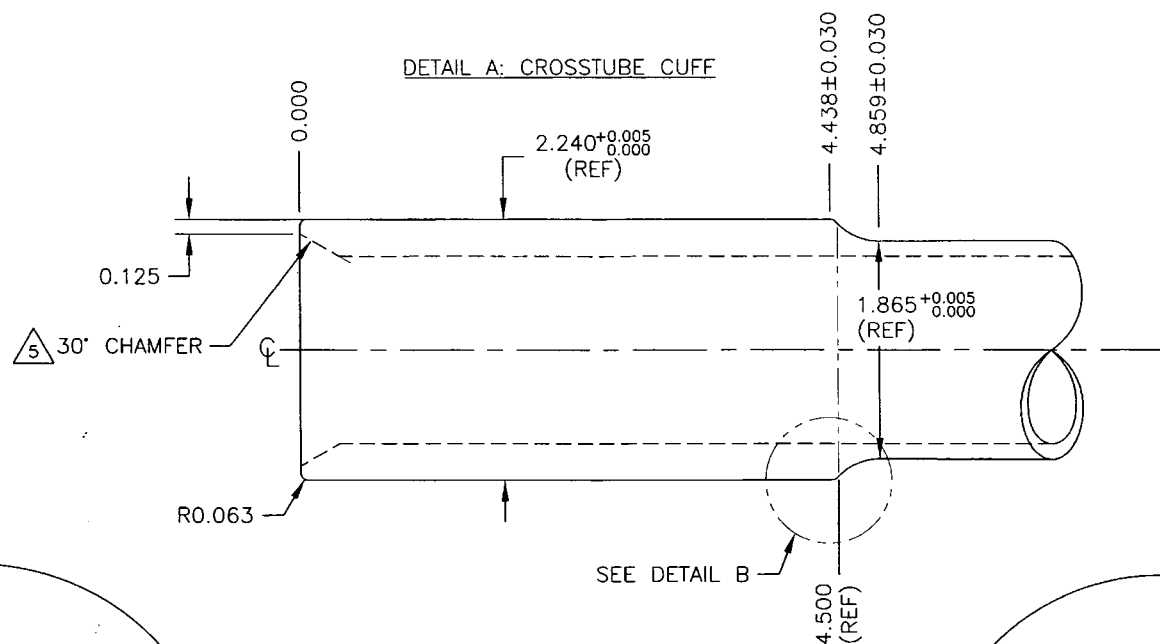
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DESIGN PH	DRAWN BY PH	DART DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA	REV. B
CHECKED DS	APPROVED DS	DRAWING NO. D407-667-145	SHEET 2 OF 3
DATE 05.07.26		TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	SCALE 1:10

RELEASED
05.07.26 PH

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06.07.01

OK

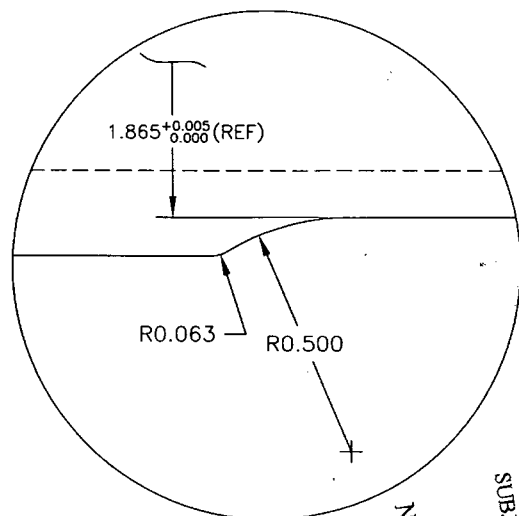
UNDER REVIEW

06.08.10 MK

re-draw detail A

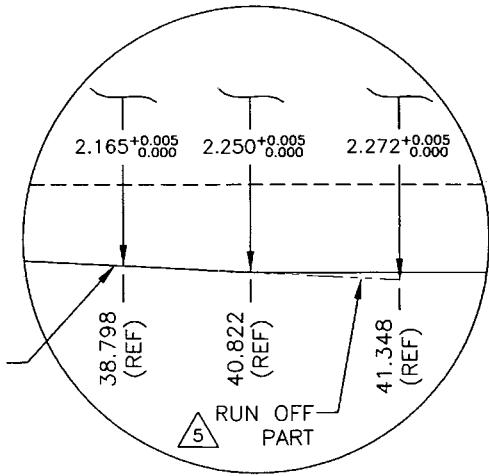
RELEASED

05.07.26



DETAIL B: CUFF
TRANSITION
SCALE 4:1

DETAIL C:
TAPER RUN-OFF
NOT TO SCALE



NO. 407/14

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		DATE	05.07.26			D407-667-145	SHEET 3 OF 3
						TITLE	SCALE
						CROSSTUBE ASS'Y (407 HIGH FWD)	1:1